

SAFETY DATA SHEET



REVISION DATE: 09/17/19

SGT-281

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: SGT-281

SYNONYMS: Hydrogen sulfide liquid scavenging product, oxidizing liquid

PRODUCT CODE(S): CAS: Proprietary Blend; Not specified as a product

MANUFACTURER: Bold Production Services, LLC
DIVISION: NA
ADDRESS: 10880 Alcott Drive., Houston, Texas, 77043

EMERGENCY PHONE: 832-320-2680
CHEMTREC PHONE: 800-424-9300
OTHER CALLS: 832-320-2629
FAX: NA

CHEMICAL NAME: Aqueous phase diazonium salt-based product
CHEMICAL FAMILY: Oxidizing organic compound
CHEMICAL FORMULA: Proprietary mixture containing diazotizing salts (N₂NaNO₂)

PRODUCT USE: Product uses include as an industrial hydrogen sulfide scavenging product.

PREPARED BY: Advanced BioGenetics & Life Sciences, LLC; 7306 SW 34th Ave., Ste. 1, PMB 367, Amarillo, TX, 79121

SECTION 1 NOTES: ¹Synonyms, chemical descriptions, and product uses provided by Bold Production Services, LLC.

PAGE 1 OF 16



832-320-2680
wwwbps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

SECTION 2: HAZARD(S) IDENTIFICATION

CLASSIFICATION: GHS Classification (CLP00):

H272 - Oxidizing liquids - Category 3 - Warning

H301 - Acute toxicity, oral - Category 3 - Danger

H319 - Serious eye damage/eye irritation - Category 2A - Warning

H400 - Hazardous to the aquatic environment, acute hazard - Category 1 - Warning

SIGNAL WORD: DANGER



HAZARD STATEMENTS:

H272 May intensify fire; oxidizer

H301 Toxic if swallowed

H319 Causes serious eye irritation

H400 Very toxic to aquatic life

PRECAUTIONARY STATEMENTS:

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P220: Keep/Store away from clothing/combustible materials.

P221+P280: Take any precaution to avoid mixing with combustibles; Wear protective gloves/protective clothing/eye protection/face protection.

P264: Wash thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release to the environment.

P301+P310: IF SWALLOWED: Immediately call POISON CENTER or doctor/physician.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing.

P321: Specific treatment (see FIRST AID MEASURES on this label).

P330: Rinse mouth.

P337+P313: If eye irritation persists: Get medical advice/attention.

P370+P378: In case of fire: Use dry chemical, carbon dioxide, or foam for extinction.

PAGE 2 OF 16



832-320-2680

wwwbps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

P391: Collect spillage.
P405: Store locked up.
P501: Dispose of contents/container to approved disposal facility.

HAZARDS NOT OTHERWISE CLASSIFIED: If evaporated to dryness, residue is an oxidizer and can stimulate or accelerate combustion of organics of other combustible materials. Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

ROUTES OF ENTRY: Ingestion (oral as liquid), inhalation (as mist), skin, and eyes (liquid or mist).

POTENTIAL HEALTH EFFECTS

EYES: Liquid or mist contact may cause irritation, tearing, or blurring of vision.

INGESTION: Ingestion may irritate the gastrointestinal tract. Ingestion of large amounts may cause poisoning. Symptoms include: conversion of the hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, stupor, respiratory distress, dizziness, and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, increased heart rate, dizziness, hypotension, fainting, and possibly shock.

INHALATION: Inhalation of mist may cause irritation of the respiratory tract. Inhalation of large amounts of mist may cause systemic effects. Contact with acids may cause severe and potentially fatal effects.

ACUTE HEALTH HAZARDS: Acutely toxic if swallowed. Irritation of eyes with serious eye damage.

CHRONIC HEALTH HAZARDS: Conclusive but not sufficient for classification.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Exposure to this product may aggravate existing lung, skin, and/or eye conditions. Smoking and obstructive or restrictive lung diseases may also compound the effects of exposures of this product in excess of the exposure limits (PEL/TLV).

CARCINOGENICITY

<u>INGREDIENT</u>	<u>ACGIH</u>	<u>IARC</u>
Nitrates	ND/E	ND/E
Nitrites	ND/E	ND/E

SECTION 2 NOTES: ¹ND/E denotes "not determined" and/or "not established." ²ACGIH classifications are referenced from the American Conference of Governmental Industrial Hygienists (ACGIH) at www.acgih.org

PAGE 3 OF 16



832-320-2680
www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

³IARC classifications are referenced from the International Agency for Research on Cancer (IARC) at www.iarc.fr
⁴Hazardous identification is referenced from the National Institute of Occupational Safety and Health (NIOSH) at www.cdc.gov/niosh
⁵GHS hazard classifications, hazard statements and precautionary statements are referenced from the United Nations Economic Commission for Europe (UNECE) Globally Harmonized System of Classification and Labelling of Chemicals (GHS) at www.echa.europa.eu

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	AMOUNT BY WEIGHT (%)
Proprietary blend of sodium nitrite and sodium nitrate salts	7632-00-0 7631-99-4	0.1 – 15.1
Total water extractable nitrites and nitrates	NA	0.1-12.0
Water (H ₂ O)-non-technical	NA	90.0-95.0
Other oxides/inerts	NA	Balance

**Proprietary product formulation is a protected trade secret, so percentages are provided as ranges*

SECTION 3 NOTES: ¹CAS No.s and OSHA PEL's are referenced from the U. S. Occupational Safety and Health Administration (OSHA) at www.osha.gov ²ACGIH TLV's are referenced from the American Conference of Governmental Industrial Hygienists (ACGIH) at www.acgih.org ³NE denotes "not established." ⁴NA denotes "not applicable/available." ⁵ND denotes "not detected." ⁶Percent (%) weight ranges provided with data generated by ANA-LAB CORP., KILGORE, TX LABORATORY, Project number 788197. ⁷H₂O (water) calculation determined as ingredient based on dry weight determination of product reported in Section 9 of this document. ⁸Other oxides/inerts calculation determined as ingredient based on dry weight determination of product reported in Section 9 of this document.

SECTION 4: FIRST AID MEASURES

EYES: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally. Remove any contact lenses and open eyes wide apart. Seek medical attention immediately.

SKIN: Remove contaminated clothing. Wash with soap and water. In instances of rashes, wounds, or other skin disorders consult with physician and bring this document. Wash clothing before reuse and clean footwear before reuse.

INGESTION: Induce vomiting ONLY as directed by medical personnel. Rinse mouth. Immediately call POISON CONTROL and seek immediate medical attention.

INHALATION: Immediately remove to fresh air. Give artificial respiration if person is not breathing and seek medical attention immediately. If discomfort develops or persists after inhalation seek medical attention. If breathing difficulties develop, oxygen should be administered by qualified personnel.

PAGE 4 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Ingestion may irritate the gastrointestinal tract. Ingestion of large amounts may cause poisoning. Symptoms include: conversion of the hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, stupor, respiratory distress, dizziness, and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, increased heart rate, dizziness, hypotension, fainting, and possibly shock.

SECTION 4 NOTES: ¹First aid measures are referenced from the National Institute of Occupational Safety and Health (NIOSH) at www.cdc.gov/niosh

SECTION 5: FIRE-FIGHTING MEASURES

NFPA 704 HAZARD CLASSIFICATION

HEALTH: 2 FLAMMABILITY: 0 REACTIVITY: 0 OTHER: Oxidizer as a dried solid

(0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)



FLAMMABLE LIMITS IN AIR, UPPER: Not flammable as a liquid/ND^{See Note 4}

(% BY VOLUME)

LOWER: Not flammable as a liquid/When evaporated, residue solids may explode when exposed to temperatures > 537° C

FLASH POINT: Nonflammable [reported ND at > 94° C]

AUTOIGNITION TEMPERATURE: NA ^{See Note 4}

EXTINGUISHING MEDIA: Spray with water. Do not flood with water, as heavy streams may spread fire. Do not use ammonium phosphate, carbon dioxide, or other dry chemical extinguishers. Do not use ABC-type fire extinguishers.

SPECIAL FIRE FIGHTING PROCEDURES: Emergency responders should wear protective clothing and self contained breathing apparatus (SCBA) should be worn. Wear other appropriate personal protective equipment

PAGE 5 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

(PPE). See Section 8 of this document for PPE selection. Stop, mitigate, contain, or isolate spill or accidental release if it can be done safely. Move any undamaged containers from immediate area if it can be done safely. Water spray may be effective in minimizing vapors during firefighting. Fight fire remotely, due to the risk of explosion. Evacuate unnecessary personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product may pose an explosion risk if heated under confinement, or evaporated to dryness. Residue is an oxidizer (nitrogen oxides) and can stimulate or accelerate combustion of organics of other combustible materials. Control or eliminate water run-off to sewers and waterways to contain this material, and notify authorities if the liquid enters sewers or public waters. Use caution to select personal protective equipment (PPE), including respiratory protection. See Section 8 of this document for PPE selection.

HAZARDOUS DECOMPOSITION PRODUCTS: This product is an oxidizing agent. Oxides of nitrogen (nitrogen oxides) will be formed during decomposition of this material, and can stimulate or accelerate combustion of organics of other combustible materials.

SECTION 5 NOTES: ¹NA denotes "not applicable/available." ² NFPA Hazard classifications and firefighting measures are referenced from the National Fire Protection Association at www.nfpa.org. ³ND denotes "not detected." See Section 9 of this document for other physical and chemical properties of this material. ⁴Select information referenced from the National Institute of Occupational Safety and Health (NIOSH) at www.cdc.gov/niosh

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Avoid contact with eyes, skin, and clothing. Avoid breathing vapor, mist, or spray. Handle in accordance with proper industrial hygiene and safe work procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, or leaving work. Keep away from combustible materials, non-ventilated areas, and ignition sources. Use appropriate personal protective equipment (PPE). See Section 2, Section 7, and Section 8 of this document for additional information.

ENVIRONMENTAL PRECAUTIONS: Stop and contain spill or release of this product if possible at a safe distance. Attempt to prevent spilled product from entering storm drains, sewage lines, or other drainage systems, as well as natural or man-made waterways. Use water sparingly to minimize environmental impacts or contamination, as well as to minimize disposable materials by volume. If spill occurs on water notify appropriate authorities while advising shipping of any hazard. Spills into or upon navigable waterways, the contiguous zone, or adjoining shorelines require notification of other authorities, including the National Response Center, the U.S. EPA, or the U.S. Coast Guard. See Section 13 of this document for disposal information. See Section 3 of this document for any ingredients in this product subject to the reporting requirements of Title III of SARA (1986) Section 313 and 40 CFR 372.

METHODS FOR CONTAINMENT AND CLEAN-UP: Contain any spills with mechanical barriers, such as dikes or absorbents, to prevent migration and entry into sewers or streams. Do not take up in a combustible material such

PAGE 6 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

as saw dust or cellulosic materials. Cover with inert absorbent such as clay and shovel into clean containers for later disposal. Mop or pump large spills into clean container for later disposal. Comply with applicable regulations during storage. Do not pressurize, cut, or weld containers. Keep away from, and store away from, direct sunlight, extremely high or low temperatures, and all incompatible materials. Use personal protective equipment (PPE) recommended in Section 8 of this document. Notify appropriate authorities in accordance with all applicable regulations. Immediate remediation of the spill is recommended, while absorbing spill with inert materials and placing in a suitable container for appropriate disposal. If spilled on water, remove with appropriate methods such as skimming, booms, or absorbents made with inert materials. In the event of soil contamination, remove contaminated soil for remediation or ultimate disposal, pursuant to all applicable regulations. See Section 13 of this document for disposal information. See Section 15 of this document for any ingredients in this product subject to the reporting requirements of Title III of SARA (1986) Section 313 and 40 CFR 372.

SECTION 6 NOTES: ¹Accidental release measures are referenced from U.S. Department of Hazardous Materials Pipeline and Hazardous Materials Safety Administration at www.phmsa.dot.gov

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: Keep product away from incompatible materials, combustible materials, and wooden floors. Keep containers tightly sealed. Do not pressurize, cut, or weld containers. Keep away from, and store away from, direct sunlight, extremely high or low temperatures, and all incompatible materials. Use personal protective equipment (PPE) recommended in Section 8 of this document. Keep away from flames and heat. Use intrinsically safe equipment when handling, transferring, or processing this product (including switch loading, vacuum truck operations, agitating, mixing, filtering, loading, unloading, tank cleaning, splash filling, gauging, and related activities). Dissipate static electricity during transfer by grounding and bonding containers and equipment before handling bulk product. Obtain special instructions prior to use. Do not handle until all safety precautions have been read and understood. Use with adequate ventilation. This product may contain or release dangerous levels of hydrogen sulfide gas. Do not breath vapors or mists. Wash thoroughly after handling. Follow good personal hygiene practices. Follow OSHA's 29 CFR 1910.134 (Respiratory Protection Standard) and OSHA's 29 CFR 1910.146 (Confined Space Entry Standard) under applicable conditions. Do not enter confined spaces or restricted areas wearing contaminated clothing or shoes.

CONDITIONS FOR SAFE STORAGE: Store in a warm place, away from incompatible materials, combustible materials, and wooden floors. Keep containers tightly sealed and properly labeled. Comply with applicable regulations during storage. Do not pressurize, cut, or weld containers. Keep away from, and store away from, direct sunlight, extremely high or low temperatures, and all incompatible materials. Empty containers may contain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of heat and ignition. Empty drums should be completely drained, properly bunged, and appropriately disposed of or recycled through commercial drum reconditioning. All containers should be disposed of in compliance with all applicable environmental regulations. Routinely check atmospheric conditions for ventilation and excessive temperatures. Keep containers away from any incompatible materials (to include strong acids, strong bases, and other strong oxidizers), while protecting container against physical damage. See Section 10 of this document for incompatible materials.

PAGE 7 OF 16



832-320-2680

wwwbps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

SECTION 7 NOTES: ¹Handling and storage instructions are referenced from the National Fire Protection Association at www.nfpa.org.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	OSHA PEL (8hr TWA) <small>See Note 1</small>	ACGIH TLV (8hr TWA)
*Sodium nitrite	NE	NE
*Sodium nitrate	NE	NE

*There are no established exposure limits from ingredient manufacturers or suppliers, importers, or any other appropriate advisory or regulatory agency, to include the following: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

ENGINEERING CONTROLS: Provide adequate local exhaust ventilation, especially in confined areas. Ensure eyewash stations and safety showers are proximal to work station location(s). Ensure all other applicable national and/or local regulations are met.

VENTILATION: Provide adequate local exhaust ventilation, especially in confined areas. If inhalation of this product occurs resulting in symptomatic responses, immediately move the exposed person to fresh air. See Section 4 of this document for first aid measures.

RESPIRATORY PROTECTION: Use only NIOSH-approved self-contained breathing apparatus (SCBA) or equivalent supplied air (SAR) respirator with positive-pressure or pressure-demand regulators, particularly when there is potential for airborne exposures to hydrogen sulfide gas during label-approved use of this product. A NIOSH-approved air purifying respirator (APR) with organic vapor cartridges may be used only under conditions where there is no detectible hydrogen sulfide gas or benzene concentrations AND where there is no less than 19.5% oxygen atmospheres. Air purifying respirators cannot be used in atmospheres that exceed the maximum use concentration, in oxygen deficient atmospheres demonstrating less than 19.5 % oxygen, or under conditions considered to be immediately dangerous to life and health (IDLH). Use personal protective equipment (PPE) recommended in this document.

EYE PROTECTION: Eye and face protection is recommended even under normal use conditions. Use this document for Personal Protective Equipment (PPE) selection. See Section 4 of this document for first aid measures. A strong suggestion is to wear appropriate eye protection when working with any chemicals, including ANSI Z.87.1 rated eye protection (glasses with side shields, splash goggles) and a face shield when necessary. Do not wear contact lenses.

SKIN PROTECTION: Skin protection is recommended even under normal use conditions. Use this document for Personal Protective Equipment (PPE) selection. See Section 4 of this document for first aid measures. A strong suggestion is to wear appropriate gloves (such as nitrile) and other skin protection when working with any chemicals, such as impervious apron and full work clothing (including long-sleeved shirts, pants, and chemical resistant boots). For prolonged or repeated contact, wear full impervious clothing. Persons should check with protective clothing (clothes and gloves) manufacturers to confirm appropriate clothing materials with this product.

PAGE 8 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Emergency or planned entry into unknown concentrations should include respiratory protection, face and eye protection, impervious clothing, chemical resistant gloves, and chemical resistant boots.

WORK HYGIENIC PRACTICES: Wash hands thoroughly after handling material and before eating, drinking, smoking, and using toilet facilities. Avoid breathing vapor. Avoid skin and eye contact. Do not eat, drink, or smoke during use.

EXPOSURE GUIDELINES: See table in this section for ingredient-specific exposure limits.

SECTION 8 NOTES: ¹NE denotes "not established." ²Exposure controls/personal protection are referenced from the National Institute of Occupational Safety and Health (NIOSH) at www.cdc.gov/niosh

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Light yellow, aqueous liquid

ODOR: Faint to odorless

ODOR THRESHOLD: 3.0 TON

PHYSICAL STATE: Liquid

pH AS SUPPLIED: 7.72 @ 31.3° C (with ATC)

BOILING POINT: 100° C

MELTING POINT: NA as an aqueous liquid

IGNITABILITY: NA as an aqueous liquid

FLASH POINT: Nonflammable [reported ND at > 94° C]

FREEZING POINT: ND but assumed at -1° C ^{See Note 4}

VAPOR PRESSURE (Reid VP at psi): 0.4 psi @ 38° C

VAPOR DENSITY (AIR = 1): ND

SPECIFIC GRAVITY (H2O = 1): 1.123 @ 20° C

PAGE 9 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

API GRAVITY (corrected): <1.0 by calculation

EVAPORATION RATE: ND

BASIS (=1): ND

SOLUBILITY IN WATER: 100% in water

SOLUBILITY IN SOLVENTS: Soluble in isopropanol and acetone

PERCENT SOLIDS BY WEIGHT: 17.8%

PERCENT VOLATILE: NA

MOLECULAR WEIGHT: 181 g/mol

VISCOSITY: 1.25 cSt @ 21.1° C

BTU/cu.ft.: < 100 BTU/lb

THERMAL CONDUCTIVITY: 0.602 – 0.642 W/m.K (10° C to 38° C)

SPECIFIC HEAT: 365 - 375 KJ/kg.K (10° C to 38° C)

LATENT HEAT OF VAPORIZATION: 2170 – 2230 KJ/kg.K (38° C to 10° C)

LATENT HEAT OF FUSION: 370 J/g° C @ -35° C

DENSITY OF LIQUID: 1.0926 – 1.1062 g/cm³ (38° C to 10° C)

SECTION 9 NOTES: ¹NA denotes “not applicable/available.” ²ND denotes “not determined.” ³Physical and chemical properties as demonstrated by independent laboratory analysis performed by ANA-LAB CORPORATION/KILGORE, TX LABORATORY Project numbers 788197, and 861460. ⁴Select information referenced from the National Institute of Occupational Safety and Health (NIOSH) at www.cdc.gov/niosh

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal ambient environments and anticipated use with product uses described in Section 1 of this document.

PAGE 10 OF 16



832-320-2680

wwwbps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

CONDITIONS TO AVOID (STABILITY): Avoid all possible sources of ignition, heat, and direct sunlight. Prevent product evaporating and drying out to produce evaporated solids. Prevent vapor accumulation during temporary or long-term storage, including transportation of bulk materials. Avoid contact with incompatible materials and chemicals.

INCOMPATIBILITY (MATERIAL TO AVOID): Avoid contact with strong oxidizing agents, strong acids, and strong reducing agents (such as cyanides, thiocyanates, thiosulfates, activated carbon, amines, and ammonium salts or NH₄⁺ salts). Incompatible with some combustibles, organics, and water-reactive substances, such as oleum (causing exothermic reactions). Also incompatible with aminoguanidine salts, butadiene, phthalic acid, phthalic anhydride, reductants, sodium amide, sodium disulphite, sodium thiocyanate, urea, and wood.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Thermal decomposition generates nitrogen oxides. If evaporated, the residue is a dangerous fire risk when heated to 537°C, and may explode. This residue is also likely to yield toxic, corrosive, and oxidizing fumes when heated.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

CONDITIONS TO AVOID (POLYMERIZATION): NA

SECTION 10 NOTES: ¹NA denotes "not applicable/available." ²Stability and reactivity of products are referenced from the National Fire Protection Association at www.nfpa.org.

SECTION 11: TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE: Inhalation, ingestion, skin contact, and eye contact.

SYMPTOMS:

Inhalation may cause respiratory irritation.

Ingestion may irritate the gastrointestinal tract. Ingestion of large amounts may cause poisoning. Symptoms include: conversion of the hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, stupor, respiratory distress, dizziness, and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, increased heart rate, dizziness, hypotension, fainting, and possibly shock.

Skin contact may cause skin irritation.

Eye contact will cause redness and pain.

ACUTE EXPOSURES: There are no available documented studies of acute exposures for this product. Below are demonstrated studies of sodium nitrite and sodium nitrate:

PAGE 11 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

Sodium nitrite (7632-00-0)

Oral Toxicity [Rat]: LD50 > 85 mg/kg

Inhalation Toxicity [Rat]: LC50 > 5.5 mg/L/4h

Sodium nitrate (7631-99-4)

Oral Toxicity [Rat]: LD50 > 1267 mg/kg

HEALTH EFFECTS: Not demonstrated to be a significant skin sensitizer or skin irritant. No specified target organ toxicities, reproductive toxicities, or aspiration toxicities have been classified for single exposures.

DELAYED AND IMMEDIATE EFFECTS: See Section 4 of this document.

CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE: No chronic effects are expected under normal conditions of use.

CARCINOGENICITY: None of the ingredients in this product have been classified as a human carcinogen in the National Institute of Occupational Safety and Health (NIOSH), or have been classified a human carcinogen in the International Agency for Research on Cancer (IARC) Monographs or the Occupational Safety and Health Administration (OSHA), as demonstrated in Section 2 of this document.

Other toxicological hazards may be present with isolated or concentrated ingredients contained in this product, as listed in Section 2 of this document.

SECTION 11 NOTES: ¹Toxicological information is referenced from the National Institute of Occupational Safety and Health (NIOSH) at www.cdc.gov/niosh ²NA denotes "not applicable/available."

SECTION 12: ECOLOGICAL INFORMATION

TOXICITY: This product is considered to be very toxic to aquatic organisms and the aquatic environment.

Sodium nitrite (7632-00-0)

Fish 1 (Oncorhynchus mykiss): LC50 19 mg/L [96h exposure; flow-through]

Fish 2 (Oncorhynchus mykiss): LC50 0.092-0.13 mg/L [96h exposure; flow-through]

Sodium nitrate (7631-99-4)

Fish 1 (Lepomis macrochirus): LC50 2000 mg/L [96h exposure; static]

Fish 1 (Lepomis macrochirus): LC50 994.4-1107 mg/L [96h exposure; static]

PERSISTENCE AND DEGRADABILITY: This product has not been evaluated for persistence and degradability. However, sodium nitrate has been demonstrated to be readily biodegradable in water.

PAGE 12 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

BIOACCUMULATION POTENTIAL: This product has not been evaluated for bioaccumulation potential. Below are demonstrated studies of sodium nitrite and sodium nitrate. As such, this product is not expected to bioaccumulate:

Sodium nitrite (7632-00-0)

Log Pow: -3.7 @ 25°C

Sodium nitrate (7631-99-4)

Log Pow: -3.8 @ 25°C

MOBILITY IN SOIL: No studies have been identified that specifically relate to this product or the ingredients.

SECTION 12 NOTES: ¹Specific ecological impact data for individual ingredients may be available in ECOTOX data bases at www.epa.gov. ²ND denotes "not determined." ³Toxicological information is referenced from the National Institute of Occupational Safety and Health (NIOSH) at www.cdc.gov/niosh

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. It is possible for this material as produced to contain concentrations of constituents not required to be listed in Section 3 of this document, but that could potentially affect a hazardous waste determination, as well as any use that would result in the alteration of the chemical or physical properties described in Section 9 of this document. See Section 7 and Section 8 of this document for safe handling and use, including appropriate hygienic practices.

All bulk containers should be completely emptied to Resource Conservation Commission and Recovery Act (RCRA) standards prior to disposal. Container residues and rinsates should be tested for RCRA defined characteristics of hazardous waste (Toxic Characteristics Leaching Procedure for metals, reactivity, corrosivity, and ignitability), prior to disposal, pursuant to 40CFR 261.21-24.

RCRA HAZARD CLASS: Not classified as a product.

SECTION 13 NOTES: Not applicable.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: Oxidizing liquid, N.O.S., (Contains Sodium Nitrite)

HAZARD CLASS: 5.1

ID NUMBER: UN3139

PACKING GROUP: III

ERG NUMBER: 140

PAGE 13 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

STCC: 28, 49

PLACARD: Oxidizing Liquid

LABEL STATEMENT: Oxidizing liquid, N.O.S., (Contains Sodium Nitrite), 5.1, III

Marine Pollutant classification: Marine pollutant

PRODUCT RQ: NA

RID/ADR TRANSPORTATION:

HAZARD CLASS: 5.1

PACKING GROUP: III

LABEL: Oxidizer

DANGER NUMBER: 3

Classification code: O1

UN NUMBER: UN3139

SHIPPING NAME: Oxidizing liquid, N.O.S., (Contains Sodium Nitrite)

REMARKS: Marine pollutant

WATER TRANSPORTATION: Transport in accordance with MARPOL 73/78 Annex II and the IBC Code

PROPER SHIPPING NAME: Oxidizing liquid, N.O.S., (Contains Sodium Nitrite)

HAZARD CLASS: 5.1

ID NUMBER: UN3139

PACKING GROUP: III

PLACARD: Oxidizer; Marine Pollutant

LABEL STATEMENTS: Oxidizing liquid, N.O.S., (Contains Sodium Nitrite), 5.1, III

AIR TRANSPORTATION:

PROPER SHIPPING NAME: Oxidizing liquid, N.O.S., (Contains Sodium Nitrite)

HAZARD CLASS: 5.1

ID NUMBER: UN3139

PACKING GROUP: III

LABEL STATEMENTS: Oxidizing liquid, N.O.S., (Contains Sodium Nitrite), 5.1, III

OTHER AGENCIES: Dependent upon use.

SECTION 14 NOTES: ¹NA denotes "not applicable/available." ²Transportation information is referenced from U.S. Department of Hazardous Materials Pipeline and Hazardous Materials Safety Administration at www.phmsa.dot.gov, and the United Nations Economic Commission for Europe (UNECE) at www.unece.org.

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

PAGE 14 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

TSCA (TOXIC SUBSTANCE CONTROL ACT): This product contains ingredients currently listed on the TSCA Inventory List as "S" (indicating a substance that is identified in a proposed or final Significant New Uses Rule). The USEPA may update the chemical substances listed to the TSCA Section 4 test rules. Check the most current version of the TSCA 4 and TSCA 12b list against ingredients listed in Section 2 of this document.

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): This product contains ingredients subject to the reporting requirements of SARA Title III and 40 CFR 372 requirements. **See SARA 313 Reportable Ingredients (RQ table) in this section of this document.**

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): This product contains ingredients subject to the reporting requirements of SARA Title III and 40 CFR 372 requirements. **See SARA 313 Reportable Ingredients (RQ table) in this section in this document.**

311/312 HAZARD CATEGORIES: This product qualifies as a "Immediate (acute) health hazard" with the following health effects:

Acute Health: Yes
Chronic Health: No
Fire Hazard: No
Pressure Hazard: No
Reactive Hazard: No

313 REPORTABLE INGREDIENTS (Reportable Quantities or RQ):

COMPONENT	CONCENTRATION (%)	RQ (lb)
Sodium nitrite	≤15.1	100
Sodium nitrite	1.0	1.0% for Emission Reporting

STATE REGULATIONS: Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations.

CALIFORNIA PROPOSITION 65: In some instances, this product may contain up to 15.1% of chemicals, compounds, or ingredients (trace elements) known to the state of California to cause cancer, birth defects, or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.

COMPONENT	TOXICITY POTENTIAL
Sodium nitrite (in combination with amines or amides)	Carcinogenicity in experimental animals

INTERNATIONAL REGULATIONS: See Section 2 of this document for a listing of GHS Hazard and Precautionary listings and statements. This product may classify as WHMIS Hazard Class C (Oxidizing material), Class D1B (Toxic material causing immediate and serious toxic effects), and Class D2B (Toxic material causing

PAGE 15 OF 16



832-320-2680

www.bps-llc.com

SAFETY DATA SHEET

REVISION DATE: 09/17/19

SGT-281

other toxic effects), pursuant to the Canadian Controlled Products Regulations (CPR). Select ingredients in Section 3 of this document may either be found on Canadian Domestic Substances List (DSL) and Canadian Ingredient Disclosure List (IDL), with IDL concentrations of >1.0%.

SECTION 15 NOTES: ¹NA denotes "not applicable/available." ²Regulatory information is referenced from the U.S. Environmental Protection Agency (EPA) at www.epa.gov. ³SARA 313 Reportable Quantities are referenced from the U. S. Environmental Protection Agency (EPA) at www.epa.gov

SECTION 16: OTHER INFORMATION

OTHER INFORMATION: Concentrations of ingredients may vary depending on batch production processes. All information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide.

This safety data sheet (SDS) is not intended as a license to operate under, or recommendation to infringe upon any patents. Appropriate warnings and safe handling procedures should be provided to handlers and users. Users should make their own investigations to determine the suitability of the information and product for their particular purposes.

PREPARATION INFORMATION:

All regulatory information contained herein is referenced from one or more of the following sources: U.S. Environmental Protection Agency (EPA), U.S. Occupational Safety and Health Administration (OSHA), American Conference of Government on Industrial Hygienists (ACGIH), International Agency for the Research on Cancer (IARC), National Institute of Occupational Safety and Health (NIOSH), National Fire Protection Association (NFPA), U.S. Department of Hazardous Materials Pipeline and Hazardous Materials Safety Administration (PHMSA/DOT), United Nations Economic Commission for Europe (UNECE) Globally Harmonized System of Classification and Labelling of Chemicals (GHS) at www.echa.europa.eu and the UNECE-CLP database at <http://echa.europa.eu/web/quest/regulations/clp> . See Section Notes in this document.

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PAGE 16 OF 16



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